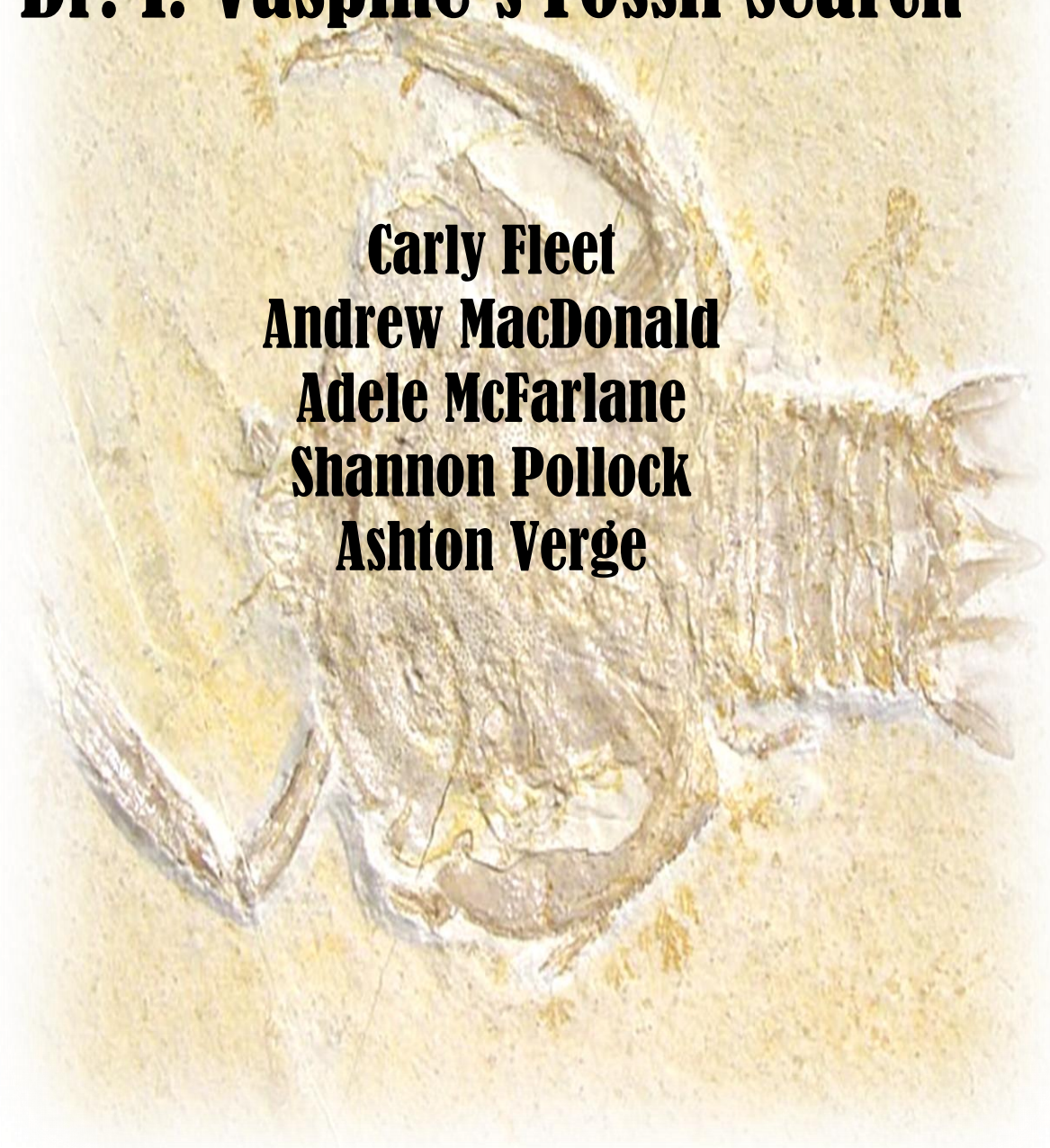


Context Based Science: Dr. I. VaSpine's Fossil Search

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Notes to Teachers

Curriculum Outcome

Grade 6 Science 300-16 - Diversity of Life, distinguish between vertebrates and invertebrates.

Overview

This Context Based Science lesson will engage students in a research process that simulates the real life research process *without* overwhelming students with too much formal detail. It will also offer a constructive, exploration- based learning experience of vertebrates and invertebrates. We have created a magazine which we have named **Scientific Adventure Magazine**; the premise of our CBS is that the magazine has lost all supporting documentation of a fossil (of a lobster) and the magazine needs the help of the students to determine what the fossil is. Through a guided research process students will discover that the fossil is an invertebrate from the ocean and will finally be able to explain and defend what the fossil is based on the research they have conducted.

The Magazine Ad

Teacher should post the magazine advertisement we have created in the classroom on the day of the unit introduction to ‘hook’ students, as well as to peak their curiosity and excitement about the scientific mission.

The Video

Teacher should begin class by showing the video we have created, which shows Dr. I. VaSpine, editor of **Scientific Adventure Magazine**, calling out to all young scientists to help him solve the fossil mystery and determine the classification of the fossil through research.

Computer Access

Although this CBS does not require computer and Smartboard access it would be ideally facilitated by such. If you have computer access think ahead to book computers before the unit begins because much of the students’ research should be completed online. If computer access is limited there are ways around this obstacle such as to provide students with scientific books and magazines, or teacher could create a poster board in place of the website.

Email Address

It would enrich the CBS experience for the students if the teacher sets up an email account for this CBS. Students would therefore think they are submitting their progress reports and research findings to the magazine rather than the teacher adding to the authenticity of the CBS.

The Website/Blog

Teacher should create a Wiki, website or blog for students to access during this unit. Website should be similar to the template we have provided and include similar information such as links to research websites for students. Progress reports students have to submit will be sent in an email addressed to Dr. I. VaSpine and **Scientific Adventure Magazine**, a copy of the good Doctor's video and the Smartboard interactive mini lessons we have provided.

Submission/Progress Reports

We suggest teachers have students email the progress reports to the CBS email address or set up a forum where they can submit the reports to the website. Teachers should use these reports to ensure students are on the right track in their research, allowing teachers to set students on the right track in case they have strayed.

Assessment

Teacher assessment rubrics are provided.

Peer Assessment

Peer assessment could be a lengthy process but will allow for proper closure of the learned outcomes of the unit. Students should present their research findings to their classmates as classmates assess their peers' research using the rubric provided. When students have all presented their findings the class can vote to decide on the classification of the fossil. Given that the teacher would have tracked and subtly guided the students' progress throughout the CBS, students should naturally realize the fossil is a lobster. They will then submit their final findings as a class to the magazine. A week later teacher could bring in a copy of the poster with a class picture inserted.

Helpful Hints

One of the major advantages of this CBS is that this allows the teacher's role to expand from the traditional 'informative vessel' or 'answer giver' to an interactive facilitator and participant. Ideally the creation of Dr. I. VaSpine and **Scientific Adventure Magazine** allows the teacher to closely monitor students' research process without the students realizing the teacher is doing so. This allows the teacher to truly interact and engage with his/her students.

Another exciting activity during this CBS would be to have a friend pretend to represent the magazine and be Skyped into the class via webcam to answer any questions the students have about the fossil. This CBS could be enriched in many ways, so be creative and have fun!

SCIENTIFIC ADVENTURE MAGAZINE

FEB.2011, VOL 7



◀ DO YOU KNOW THIS FOSSIL?

The distinguished, Dr. I.Vaspine, is looking for information on this fossil and Scientific Adventure Magazine has joined in the search to find young scientists to help crack this unsolved mystery!

THIS COULD BE YOU ▶

Do you have basic knowledge of how to categorize invertebrates from vertebrates? Join the search and you may find your self on the cover of the next issue of Scientific Adventure Magazine!



DEAR YOUNG SCIENTISTS: WE WANT YOU TO HELP US SOLVE THE MYSTERY OF OUR UNIDENTIFIED FOSSIL

During our yearly inventory check we realized that we are missing very valuable documentation of one of our precious fossils.

All we have is this one photograph (see right) to help us solve our missing mystery fossil. Unfortunately our photographs of fossils can often be deceiving when trying to identify which category of species it belongs in.

Dr. I. VaSpine is our lead Scientist on this case and he needs your help to solve this mystery. We are looking for scientists who have a basic knowledge of how to categorize invertebrates from vertebrates, in order to crack this unsolved mystery.

ARE YOU UP FOR THE CHALLENGE?

To ensure that your classifying of vertebrate/invertebrate abilities are up to speed, we have included a list of helpful resources for you to read up on. Also we have attached some mini tests that our scientists use to help practice your skills separating and categorizing the invertebrates from the vertebrates. (see next page for our list of complete resources)



UNIDENTIFIED FOSSIL

WHAT WE NEED YOU TO COMPLETE

1. Visit two of the three websites suggested and complete the field notes report.
2. Practice your skills by completing the interactive games on the SMART board in your classroom.
3. Complete progress report one.
4. Complete progress report two.
5. Complete a final report documenting your overall findings and discovery.

USE THE FOLLOWING RESOURCES TO HELP YOU ON YOUR JOURNEY OF DISCOVERY: GOODLUCK YOUNG SCIENTISTS

Bill Nye is one of our most trusted allies here at Scientific Adventure. Check out what he has to say about invertebrates and vertebrates here:

<http://www.billnye.com/episodes/pdf/episodeguide75.pdf>

This is one of our favourite websites because it has some great pictures that help distinguish the differences between invertebrates and vertebrates. Check it out:

http://www.biology4kids.com/files/invert_main.html

This is a great spot to help freshen up on those science skills of yours. Watch a video, play a game and be interactive! Don't forget to use the following information to log in.

Username: Miss. Verge

Password: Science

<http://www.brainpop.com/science/diversityoflife/invertebrates/>

Visit our blog to keep updated on important information and to find other important links and resources to help you on your journey to solving this mystery!

<http://scientificadventures.blogspot.com/>



WE NEED YOUR HELP TODAY!



DO YOU KNOW THIS FOSSIL?

Dear Young Science Adventurers:

Best of luck!

Progress Report 1

☐ Vertebrate

Explain your choice; don't forget to make reference to your research.

A faint, stylized illustration of a person in a long, flowing robe, possibly a historical figure or a religious figure, standing with hands clasped in prayer. The figure is rendered in a light, sketchy style against a plain background.

Scientists Name:

Science Field Notes

	Website Visited	Key Notes to help me distinguish Invertebrates from Vertebrates
1		
2		
3		

Scientific Adventure Magazine Discovery Final Proposal

Expectations For Final Proposal

Scientific Adventure requires a final proposal in order for your findings to be considered. The proposal must include a detailed description of the animal you believe the fossil belongs to and whether this animal is an invertebrate or vertebrate. The final proposal can be presented to Dr. I. VaSpine and his staff at the Scientific Adventure Magazine in any format that you wish. Many of our regular magazine contributors present information to us in a written report, poster, or video presentation. We are always open to new ideas and love creativity.

Please Send Presentation To:

Dr. I. VaSpine and Staff
Scientific Adventure Magazine
Fossil Lane
Halifax, Nova Scotia, Canada
B2X 3A2

Email: i.vaspine@scientificadventure.ca

Phone: (902) 562-7978
Fax: (902) 563-7977

Scientific Adventure Magazine Discovery Evaluation

Scientist Names:

Date of Review:

Dr. I. VaSpine's Signature:

Invertebrate/Vertebrate Description

Solid Scientific Evidence

Questionable Scientific
Evidence

No Scientific Evidence

Reviewer Notes:

Animal Description

Solid Scientific Evidence

Questionable Scientific
Evidence

No Scientific Evidence

Reviewer Notes:

References

3-4 Supporting References

1-2 Supporting References

No Supporting References

Recommendation

☐

I Recommend This Report For Scientific Adventure

☐

I Do Not Recommend This Report For
Scientific Adventure